# Convenient Units for Quantum Mechanics

Because most of the applications we will consider involve atoms,
it is useful to use units appropriate to those objects.

We will express wavelength in nanometers (nm).

We will express energy in electron volts (eV).

1 eV = energy an electron gains moving across a one volt potential difference:
1 eV = (1.6022 x $10^{-19}$ Coulomb)(1 volt) = 1.6022 x $10^{-19}$ Joules.

Therefore, SI units: h = 6.626 x $10^{-34}$ J-s and hc = 1.986 x $10^{-25}$ J-m

eV units: h = 4.14 x $10^{-15}$ eV-s, and hc = 1240 eV-nm.

$$E_{photon} = \frac{hc}{\lambda} = \frac{1240\ eV \cdot nm}{\lambda}$$

$E_{photon}$ in electron volts

$\lambda$ in nanometers

Example: A red photon with $\lambda$ = 620 nm has E = 2 eV.